



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/791,673

03/01/2004

Robert Hoffman

ANDIP035A

2596

22434 7590 08/02/2007
BEYER WEAVER LLP
P.O. BOX 70250
OAKLAND, CA 94612-0250

EXAMINER

BOKHARI, SYED M

ART UNIT	PAPER NUMBER
----------	--------------

2609

MAIL DATE	DELIVERY MODE
-----------	---------------

08/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/791,673

Applicant(s)

HOFFMAN ET AL.

Examiner

Syed Bokhari

Art Unit

2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-26 and 29-33 is/are rejected.
- 7) ☐ Claim(s) 27 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 03/28/2005 and 06/07/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
2. The abstract of the disclosure is objected to because "are provided" in line 1 is improper language. Correction is required. See MPEP § 608.01(b).
3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Art Unit: 2609

Claim Objections

4. Claims 9 and 19 are objected to under 37 CFR 1.75 because of the following informalities:

For claim 9, the occurrence of "a memory" in lines 1-2 and "a queue" in line 4 refers back to "a memory" previously recited in line 2 and line 3 of claim 8 respectively, if it is true, it is suggested to applicant to change "a memory" to --the memory-- and --the queue--.

For claim 19, the occurrence of "a memory" in line 2 and "a queue" in line 4 should be changed to --the memory-- and --the queue--.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 1-2, 5, 8, 11-12, 15, 18 and 23-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Ronneke et al. (US 2004/0105393 A1).

For claim 1, Ronneke et al. discloses a method of allocating queues in a network device, the method comprising (see paragraph 0033 lines 1-9 on page 4 in Detailed Description of the Invention); making a classification for an incoming

packet (see paragraph 0113 lines 1-6 on page 10 in Detailed Description of the Invention); determining whether a queue has already been allocated for the classification (see paragraph 0065 lines 1-5 on page 6 in Detailed Description of the Invention) and allocating the queue when the queue has not already been allocated for the classification (see paragraph 0065 lines 7-15 on page 6 in Detailed Description of the Invention)

For claim 2, Ronneke et al. discloses wherein the queue is associated with an ingress port of the network device (see paragraph 0113 lines 1-3 on page 10 in Detailed Description of the Invention).

For claim 5, Ronneke et al. discloses wherein the queue is associated with an ingress port (see paragraph 0113 lines 1-6 on page 10 in Detailed Description of the Invention).

For claim 8, Ronneke et al. discloses wherein the determining step comprises addressing a memory that indicates whether the classification has already been allocated a queue (see paragraph 0017 lines 1-6 on page 2 in Summary of the Invention).

For claim 11, Ronneke et al. discloses a network device, comprising: means for making a classification for an incoming packet (see paragraph 0113 lines 1-6 on page 10 in Detailed Description of the Invention); means for determining whether

a queue has already been allocated for the classification (see paragraph 0065 lines 1-5 on page 6 in Detailed Description of the Invention) and means for allocating the queue when the queue has not already been allocated for the classification (see paragraph 0065 lines 7-15 on page 6 in Detailed Description of the Invention).

For claim 12, Ronneke et al. discloses wherein the queue is associated with an ingress port of the network device (see paragraph 0113 lines 1-3 on page 10 in Detailed Description of the Invention).

For claim 15, Ronneke et al. discloses wherein the queue is associated with an ingress port (see paragraph 0113 lines 1-6 on page 10 in Detailed Description of the Invention).

For claim 18, Ronneke et al. discloses wherein the determining step comprises addressing a memory that indicates whether the classification has already been allocated a queue (see paragraph 0017 lines 1-6 on page 2 in Summary of the Invention).

For claim 23, Ronneke et al. discloses a network device, comprising a plurality of ports configured to receive incoming packets (see paragraph 0024 lines 18-25 on page 3 in Summary of the Invention).

For claim 24, Ronneke et al. discloses wherein the memory is a content addressable memory (see paragraph 0052 lines 19-24 on page 5 in Detailed Description of the Invention).

For claim 25, Ronneke et al. discloses wherein the memory is a random access memory (see paragraph 0052 lines 19-24 on page 5 in Detailed Description of the Invention).

For claim 26, Ronneke et al. discloses a method of allocating queues in a network device, the method comprising having no queues allocated at a first time (see paragraph 0065 lines 1-5 on page 6 in Detailed Description of the Invention); receiving a first packet; making a first classification for the first packet (see paragraph 0113 lines 1-6 on page 10 in Detailed Description of the Invention); allocating a first queue for the first classification (see paragraph 0065 lines 7-15 on page 6 in Detailed Description of the Invention); receiving a second packet; making a second classification for the second packet (see Abstract lines 7-13); and determining whether the first classification is the same as the second classification (see paragraph 0035 lines 7-12 on page 4 in Summary of the Invention).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ronneke et al. (US 2004/0105393 A1 in view of Wynne et al. (US 2003/0016686 A1).

For claim 3, Ronneke discloses all the limitations as recited in paragraph 6 of this office action but fails to teach wherein the queue is a virtual output queue. Wynne et al. in the same and similar field of endeavor discloses wherein the queue is a virtual output queue (see paragraph 0017 lines 5-10 on page 2 in Brief Summary of Invention).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use the same method of maintaining the VOQ as taught by Wynne et al. in the communication system of Ronneke et al. A separate Virtual Output Queue (VOQ) method to eliminate the blocking as taught by Wynne et al. can be modified/implemented in the communication system of Ronneke et al. by adding a traffic manager module in the flow controlling arrangement of gateway node. The traffic manager maintains a separate VOQ associated with each forwarding resource and identifies each flow queue into the VOQ associated with forwarding resource. The motivation for adding a buffer a traffic manager to the flow controlling arrangement is to eliminate the blocking of the traffic flow.

For claim 13, Ronneke discloses all the limitations as recited in paragraph 6 of this office action but fails to teach wherein the queue is a virtual output queue. Wynne et al. in the same and similar field of endeavor discloses wherein the queue is a virtual output queue (see paragraph 0017 lines 5-10 on page 2 in Brief Summary of Invention).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use the same means of maintaining the VOQ as taught by Wynne et al. in the communication system of Ronneke et al. A separate Virtual Output Queue (VOQ) means to eliminate the blocking as taught by Wynne et al. can be modified/implemented in the communication system of Ronneke et al. by adding a traffic manager module in the flow controlling arrangement of gateway node. The traffic manager maintains a separate VOQ associated with each forwarding resource and identifies each flow queue into the VOQ associated with forwarding resource. The motivation for adding a buffer a traffic manager to the flow controlling arrangement is to eliminate the blocking of the traffic flow.

11. Claims 4, 6-7, 9-10, 14, 16-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ronneke et al. (US 2004/0105393 A1) in view of Bauman et al. (US 2003/0231593 A1).

For claim 4 and 9-10:

For claim 4, Ronneke et al. discloses a method of allocating queues in a network device, the method comprising (see paragraph 0033 lines 1-9 on page 4 in Detailed Description of the Invention); making a classification for an incoming packet (see paragraph 0113 lines 1-6 on page 10 in Detailed Description of the Invention); determining whether a queue has already been allocated for the classification (see paragraph 0065 lines 1-5 on page 6 in Detailed Description of the Invention) and allocating the queue when the queue has not already been

Art Unit: 2609

allocated for the classification (see paragraph 0065 lines 7-15 on page 6 in Detailed Description of the Invention).

For claim 9, Ronneke et al. discloses wherein the memory indicates whether the classification has already been allocated a queue (see paragraph 0017 lines 1-6 on page 2 in Summary of the Invention). Ronneke et al. teaches all the subject matter of the above claimed invention with the exception of:

- Detecting when a queue is empty and de-allocating the empty queue as recited in claim 4.
- Further comprising updating a memory when a queue is de-allocated as recited in claim 9.
- Wherein the network device further comprises a free list that indicates queues available for allocation as recited in claim 10.
- Wherein the method further comprises updating the free list when a queue is de-allocated

Bauman et al. from the same or similar field of endeavor teaches above limitations:

For claim 4, detecting when a queue is empty (see paragraph 0051 lines 1-8 on page 7 in Detailed Description).

For claim 9, further comprising updating a memory when a queue is de-allocated (see paragraph 0045 lines 8-11 on page 6 in Detailed Description).

For claim 10, wherein the network device further comprises a free list that indicates queues available for allocation (see paragraph 0050 lines 12-20 and on

page 7 in Detailed Description) and wherein the method further comprises updating the free list when a queue is de-allocated (see paragraph 0051 lines 3-8 on page 7 in Detailed Description).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use of the same method of queue management system as taught by Bauman in the communication system of Ronneke. The method of detecting an empty queue, de-allocating and updating the empty queue as taught by Bauman et al. can be modified/implemented in the communication system of Ronneke et al. by enhancing functions of the flow controlling arrangement of gateway node with queuing management and queue manager codes. The queue management system is based on scaling factors pertaining to each queue. The queue is detected as empty when the scaling factor reaches to 0 (zero). The queue manager manages the queuing of incoming packets and updating. The motivation of using the queue management system with queue manager is to make the traffic flow control function much better for handling higher traffic capacity with efficient manner.

For claim 6, Ronneke et al. discloses all the limitations as recited in paragraph 6 of this office action but fails to teach wherein the classification is based on a packet source, a packet destination or a packet priority. Bauman et al. in the same or similar field of endeavor discloses wherein the classification is based on a packet source, a packet destination or a packet priority (see paragraph 0023 lines 1-9 on page 2 in Detailed Description).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use of the same method of classification as taught by Bauman et al. in the communication system of Ronneke et al. The classification method based on a packet source, a packet destination or packet priority as taught by Bauman et al. can be modified/implemented in the communication system of Ronneke et al. by programming the classifying means to read the header information of each incoming packet. The classification method based on source, destination or priority is critical of queuing incoming packets into specific queues. The motivation of enhancing the method of classifying means is to control the flow of traffic in an efficient way.

For claim 7, Ronneke discloses all the limitations as recited in paragraph 6 of this office action but fails to teach wherein the classification comprises a Q number. Bauman et al. in the same or similar field of endeavor discloses wherein the classification comprises a Q number (paragraph 0052 lines 1-7 on page 7 in Detailed Description).

For claims 14 and 19-21:

For claim 14, Ronneke et al. discloses a network device, comprising: means for making a classification for an incoming packet (see paragraph 0113 lines 1-6 on page 10 in Detailed Description of the Invention); means for determining whether a queue has already been allocated for the classification (see paragraph 0065 lines 1-5 on page 6 in Detailed Description of the Invention) and means for

allocating the queue when the queue has not already been allocated for the classification (see paragraph 0065 lines 7-15 on page 6 in Detailed Description of the Invention).

For claim 19, Ronneke et al. discloses wherein the memory indicates whether the classification has already been allocated a queue (see paragraph 0017 lines 1-6 on page 2 in Summary of the Invention). Ronneke et al. teaches all the subject matter of the above claimed invention with the exception of:

For claim 14, Ronneke et al. discloses wherein the memory indicates whether the classification has already been allocated a queue (see paragraph 0017 lines 1-6 on page 2 in Summary of the Invention). Ronneke et al. teaches all the subject matter of the above claimed invention with the exception of:

- Means for detecting when a queue is empty and means for de-allocating the empty queue as recited in claim 14.
- Further comprising means for updating a memory when a queue is de-allocated as recited in claim 19.
- Wherein the network device further comprises a free list that indicates queues available for allocation as recited in claim 20.
- Means for updating the free list when a queue is de-allocated as recited in claim 21.

Bauman et al. from the same or similar field of endeavor teaches above limitations:

For claim 14, further comprising: further comprising: means for detecting when a queue is empty and means for de-allocating the empty queue (see paragraph 0051 lines 1-8 on page 7 in Detailed Description).

For claim 19, further comprising means for updating a memory when a queue is de-allocated (see paragraph 0045 lines 8-11 on page 6 in Detailed Description).

For claim 20, wherein the network device further comprises a free list that indicates queues available for allocation (see paragraph 0050 lines 12-20 and on page 7 in Detailed Description).

For claim 21, means for updating the free list when a queue is de-allocated (see paragraph 0051 lines 3-8 on page 7 in Detailed Description).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use of the same means of queue management system as taught by Bauman in the communication system of Ronneke. The means of detecting an empty queue and de-allocating the empty queue as taught by Bauman et al. can be modified/implemented in the communication system of Ronneke et al. by enhancing functions of the flow controlling arrangement of gateway node with the help of queuing management and queue manager codes for detecting empty queues and updating. The queue management system is based on scaling factors pertaining to each queue. The queue is detected as

empty when the scaling factor reaches to 0 (zero). The queue manager manages the queuing of incoming packets and the updating. The motivation of using the queue management system with queue manager is to make the traffic flow control function much better for handling higher traffic capacity and with efficient manner.

For claim 16, Ronneke discloses all the limitations as recited in paragraph 6 of this office action but fails to teach wherein the classification is based on a packet source, a packet destination or a packet priority. Bauman et al. in the same or similar field of endeavor discloses wherein the classification is based on a packet source, a packet destination or a packet priority (see paragraph 0023 lines 1-9 on page 2 in Detailed Description).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use of the same classification engine as taught by Bauman et al. in the communication system of Ronneke et al. The classification based on a packet source, a packet destination or packet priority as taught by Bauman et al. can be modified/implemented in the communication system of Ronneke et al. replacing the classifying means to enhance the processing for reading the header information of each incoming packet. The classification engine classifies on the base of packet source, destination or priority that is critical for queuing incoming packets into specific queues. The motivation of using the classification engine is to control the flow of traffic in an efficient way.

Art Unit: 2609

For claim 17, Ronneke discloses all the limitations as recited in paragraph 6 of this office action but fails to teach wherein the classification comprises a Q number. Bauman et al. in the same or similar field of endeavor discloses wherein the classification comprises a Q number (paragraph 0052 lines 1-7 on page 7 in Detailed Description).

12. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ronneke et al. (US 2004/0105393 A1) in view of Jin et al. (US 2003/0214948 A1).

For claim 22, Ronneke discloses all the limitations as recited in paragraph 6 of this office action but fails to teach a computer program embodied in a machine-readable medium, the computer program configured to control a network device. Jin et al. in the same or similar field of endeavor teaches a computer program embodied in a machine-readable medium, the computer program configured to control a network device (see paragraph 0090 lines 1-6 on page 8 in Detailed Description of the Invention).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use a computer program embodied in a machine-readable medium as taught by Jin et al. in the communication system of Ronneke et al. The computer readable recording medium includes storage devices as taught by Jin et al. can be modified/implemented in the communication system of Ronneke et al. by replacing the gateway with the computer and to program the readable recording medium with the codes. The computer readable recording medium

Art Unit: 2609

includes all types of storage devices and can be used as a node such as router or gateway to handle the control traffic flow in a communication system. The motivation for using the computer readable recording medium is to make it more economical.

13. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moussavi et al. (US 6,603,772) in view of Ronneke et al. (US 2004/0105393 A1).

For claim 29, Moussavi et al. discloses allocating a second number of physical queues for the ingress port (see column 8 lines 3-6 in Detailed Description of the Preferred Embodiment) and wherein the second number is less than or equal to the first number (see column 8 lines 2-3 in Detailed Description of the Preferred Embodiment). Moussavi et al. discloses all the subject matter of the claimed invention with the exception of a method of allocating queues in a network device, the method comprising: determining a first number of packets that an ingress port of the network device can receive. Ronneke et al. in the same or similar field of endeavor teaches a method of allocating queues in a network device, the method comprising: determining a first number of packets that an ingress port of the network device can receive (see paragraph 0113 lines 1-3 on page 10 in Detailed Description of the Invention).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use the same method of determining a first number of packets as taught by Ronneke et al. in the communication system of Moussavi et al. To determine the first number of packets arriving at the ingress port as taught

by Ronneke et al. in the communication system of Moussavi et al. can be modified /implemented by incorporating this function into the switch to compute at input ports. The method of allocating queues to the ingress packets includes the steps of determining the first number of packets and allocating a second number of queues where second number will be less than or equal to first. The motivation of using the method of allocating the queues in the device is to route the traffic with better performance with reduced blocking.

14. Claims 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moussavi et al. (US 6,603,772) in view of Ronneke et al. (US 2004/0105393 A1) as applied to claim 29 above, and further in view of Bauman et al. (US 2003/0231593 A1).

For claims 30-33, Moussavi et al. and Ronneke et al. discloses all the claim limitations as recited in paragraph 10 of this office action but fail to teach:

- Wherein the network device operates according to the Fibre Channel protocol as recited in claim 30.
- Wherein the determining step is based on a number of buffer-to-buffer credits granted by the ingress port as recited in claim 30.
- Further comprising: identifying a category for each packet arriving at the ingress port as recited in claim 31.
- Correlating the category to an existing physical queue as recited in claim 31.
- Storing packet information in the physical queue as recited in claim 31.
- Further comprising: identifying a category for each packet arriving at the ingress port as recited in claim 32.

- Assigning the category to a physical queue as recited in claim 32.
- Wherein the network device allocates a new physical queue only when there is no existing physical queue for the category as recited in claim 32.
- Wherein the packet information comprises control information selected from the list consisting of destination information, source information, priority information, payload type information and payload size information as recited in claim 33.

For claim 30, Bauman et al. discloses wherein the network device operates according to the Fibre Channel protocol (see paragraph 0022 lines 13-15 on page 2 in Detailed Description) and wherein the determining step is based on a number of buffer-to-buffer credits granted by the ingress port (see paragraph 0012 lines 5-9 on page 2 in Summary of the Invention).

For claim 31, Bauman et al. discloses Further comprising: identifying a category for each packet arriving at the ingress port (see paragraph 0047 lines 22-27 on page 6 in Detailed Description); correlating the category to an existing physical queue (see paragraph 0047 lines 1-16 on page 6 in Detailed Description) and storing packet information in the physical queue (see paragraph 0028 lines 11-14 on page 3 in Detailed Description).

For claim 32, Bauman discloses further comprising: identifying a category for each packet arriving at the ingress port (see paragraph 0023 lines 1-4 on page 2

in Detailed Description); assigning the category to a physical queue (see paragraph 0056 lines 11-13 on page 8 in Detailed Description) and wherein the network device allocates a new physical queue only when there is no existing physical queue for the category (see paragraph 0056 lines 13-15 on page 8 in Detailed Description).

For claim 33, Bauman et al. discloses wherein the packet information comprises control information selected from the list consisting of destination information, source information, priority information, payload type information and payload size information (see paragraph 0023 lines 4-9 on page 2 in Detailed Description).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use the same method of buffer-to-buffer credit, identifying category of each incoming packets, assigning category to a physical queue and allocating a new physical queue as taught by Bauman et al. in the communication network of Moussavi et al. The method of buffer credits, ingress packets category identification, allocating a queue with a category assignment as taught by Bauman et al. can be modified/implemented in the communication network of Moussavi et al. by programming the switch to incorporate the required functionalities. The dynamic allocation method of physical queue avoids the limitation on the number of packets received at the input due to the protocols being used by the flow control mechanism. The motivation of using the dynamic allocation method is to reduce the traffic blocking for better performance.

Allowable Subject Matter

15. Claim 27-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

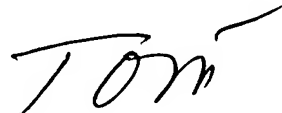
16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2005/0138238 A1 (Tierney et al.), US 2004/0151184 A1 (Wang et al.), US 2004/0264472 A1 (Oliver et al.), US 2004/0017810 A1 (Anderson et al.), US 2003/0076848 A1 (Bremner-Barr et al.), US 2003/0223368 A1 (Allen et al.), 5,313,454 (Bustini et al.) and US 7,225,271 B1 (DiBiasio et al.)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed Bokhari whose telephone number is (571) 270-3115. The examiner can normally be reached on Monday through Friday from 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on (571) 272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2609

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Tom' with a stylized flourish at the end.

DANG T. TON
SUPERVISORY PATENT EXAMINER